Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A single crystalline thin film formed on an underlayer, ~~wherein~~comprising

said thin film is made of a substance different from that of said underlayer,

a specific atomic layer contained in common in said underlayer and said thin film is shared at an interface of said underlayer and said thin film, and

in a region as adjacent to the interface as 100 or fewer unit cells of the thin film apart from the interface, a ratio of crystalline regions having grown with an orientation of ± 2 degrees or less deviation angle on the basis of a crystal orientation of said underlayer is 50% or more;

wherein said thin film is made of a RE, Barium, Copper and Oxygen ~~$RE_{1+x}Ba_{2-x}Cu_3O_{7-y}$~~(Sm 123) based superconductor;

wherein RE represents at least one kind of rare earth elements;

wherein said underlayer is made of $BaZrO_3$; and

wherein the Sm123 thin film is up to 1.0 μm thick;

said thin film is superconductive at a temperature higher than 91 K and has a critical current density of more than $4x10^5$ A/cm^2, when a magnetic field of at least 1T is applied parallel to a c axis of the Sm123 film at a temperature of 77K or greater.

2. (Original) The single crystalline thin film according to claim 1, wherein each of said thin film and said underlayer is made of a substance having a stacked-layer crystal structure.

3. (Original) The single crystalline thin film according to claim 1, wherein at least one of said thin film and said underlayer is made of an oxide including at least two kinds of metal elements.

4. (Original) The single crystalline thin film according to claim 1, wherein at least one of said thin film and said underlayer is made of a substance having a crystal structure of a perovskite type.

5. (Original) The single crystalline thin film according to claim 1, wherein a

difference in lattice constant between said thin film and said underlayer is in a range of more than 5% and less than 15%.

6. (Cancelled).

7. (Cancelled).

8. (Cancelled).

9. (Original) The single crystalline thin film according to claim 1, wherein said interface has its interface energy of lower than 2 J/m^2.

10. (Original) The single crystalline thin film according to claim 9, wherein said interface energy is calculated by the first-principles calculation band method.

11. (Cancel).

12. (New) A method of forming a single crystalline thin film on an underlayer, the method comprising,

providing a thin film made of a substance different from the underlayer;

forming a atomic layer interface shared between the underlayer and the thin film;

providing a region adjacent to the interface about 100 or fewer unit cells of the thin film apart from the interface, a ratio of crystalline regions having grown with an orientation of ± 2 degrees or less deviation angle on the basis of a crystal orientation of said underlayer is 50% or more;

forming the thin film of RE, Barium, Copper and Oxygen (Sm 123) based superconductor;

applying a magnetic field of at least 1T parallel to a c axis of the thin film at a temperature of 77K or greater and providing a thin film that is superconductive at a temperature higher than 91 K and providing thin film with a critical current density of more than $4x10^5$ A/cm^2;

wherein RE represents at least one type of rare earth elements;

wherein the underlayer is formed of $BaZrO_3$; and

wherein forming the Sm123 thin film of up to 1.0 μm thick.

13. (New) The method of claim 12, further comprising providing a substance having a stacked-layer crystal structure for the thin film and the underlayer.

14. (New) The method of claim 12, wherein providing one of said thin film and said underlayer is made of an oxide including at least two kinds of metal elements.

15. (New) The method of claim 12, manufacturing at least one of said thin film and said underlayer of a substance having a perovskite type crystal structure.

16. (New) The method of claim 12, providing a difference in lattice constant between said thin film and said underlayer is in a range of more than 5% and less than 15%.

17. (New) The method of claim 12, providing an interface energy of lower than 2 J/m^2.

18. (New) The method of claim 17, wherein calculating the interface energy is performed by the first-principles calculation band method.